

Practitioner's Docket No.: 800_024 DIV

PATENT

#4A
NEAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Michio TAKAHASHI

Ser. No.: 10/037,409

Filed: January 4, 2002

For: LITHIUM SECONDARY BATTERY



Assistant Commissioner for Patents
Washington, DC 20231

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Elizabeth A. VanAntwerp
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PRELIMINARY AMENDMENT

Sir:

Prior to examination of the above-identified application on the merits, please amend the application as follows:

In the Claims:

Please cancel claims 1-4 in favor of new claims 5-15 as follows:

5. (NEW) A method of reducing the internal resistance of a lithium secondary battery that includes a positive active material containing a lithium manganese oxide having a cubic spinel structure, said method comprising:

controlling the crystallite size of the lithium manganese oxide to be 58 nm or greater;

and

controlling the lattice distortion of the lithium manganese oxide to be 0.09% or less.

6. (NEW) The method according to claim 5, wherein a Li/Mn ratio in the lithium manganese oxide exceeds 0.5.

7. (NEW) The method according to claim 5, wherein at least one of the crystallite size and lattice distortion of the lithium manganese oxide are controlled by firing at least one of (i) salts and oxides of lithium and (ii) salts and oxides of manganese in an oxidizing atmosphere at a firing temperature in a range of 650°C to 1000°C for 5 to 50 hours.